## عنوان مقاله:

A Deep Learning Approach for Prediction of Dead Oil Viscosity

## محل انتشار:

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## خلاصه مقاله:

Oil viscosity contributes significantly to the prediction of different parameters such as reservoir performance, determination of most appropriate EOR method, well testing, modeling of fluid flow in porous media, designing production apparatus and, etc. Direct viscosity measurement is fairly expensive and also takes time. Therefore, different empirical correlation has been developed to predict the oil viscosity. The accuracy of these correlations depends on the oil type, oil composition, reservoir pressure and temperature, etc. Recently, several studies are performed to estimate the oil viscosity using artificial intelligence. In this work, we perform a deep learning study to determine the oil viscosity. The merit of this method is that it is not restricted to a particular range of data, and it is possible to make it more accurate using new set(s) of data. In this study we used Feedforward Deep Learning Models to estimate the viscosity of dead oil. A data set consisting of ۷۳ laboratory measurements on oil samples was gathered from different oil fields of Iran. The result of this study has been compared with common correlations such as Beal and Beggs, Labedi, and etc, the results showed a good match between actual and predicted data. The developed model proved to be very efficient and accurately predicted the oil viscosity with MSE=۰.۱۹ and MAE=۰.۳۳.

## کلمات کلیدی:

Deep learning, Viscosity, Artificial Intelligence, Prediction, Feedforward.